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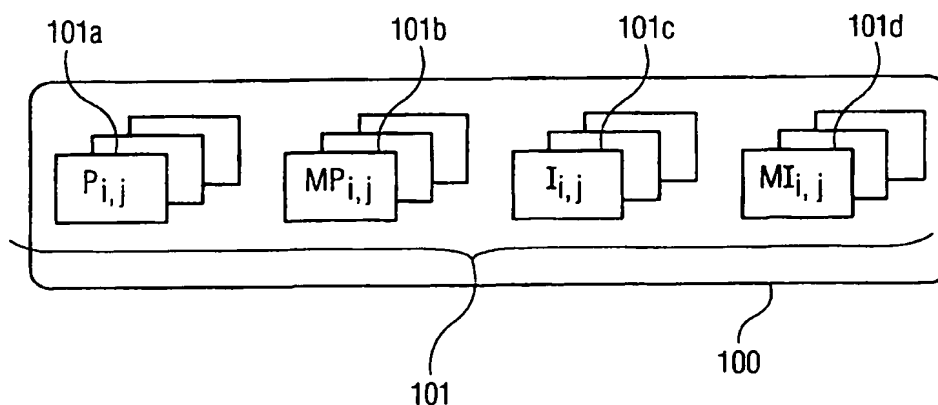
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(54) Title: AN ENHANCED METHOD FOR HANDLING PREEMPTION POINTS



(57) Abstract: A method and apparatus is provided for use by a scheduler of a multi-processing data processing system to select task preemption points based on main memory requirements and exclusive resource usage that is cost-effective and that maintains system consistency and, in particular, enables additional preemption strategies in which: matching synchronization primitives do not span a preemption point, i.e., sub job boundary; for a particular resource  $R_k$ , all intervals/sub-jobs of all tasks that use this resource (and protect it by using synchronization primitives) are either all preemptible or all non-preemptible- i. in case they are all preemptible the synchronization primitives must be executed, and ii. in case they are all non-preemptible, it is not necessary to execute the synchronization primitives; preemption of a subset of tasks is limited to the preemption points of this subset while allowing arbitrary preemption of all the other tasks; and preemption of a subset of tasks is limited to their preemption points, preemption of the other tasks is limited to a subset of their preemption points, while allowing arbitrary preemption of their remaining intervals. That is, the present invention is a main memory based preemption technique that is not restricted to preemption only at predetermined preemption points and that avoids deadlock due to exclusive use of resources.

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(H)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI

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